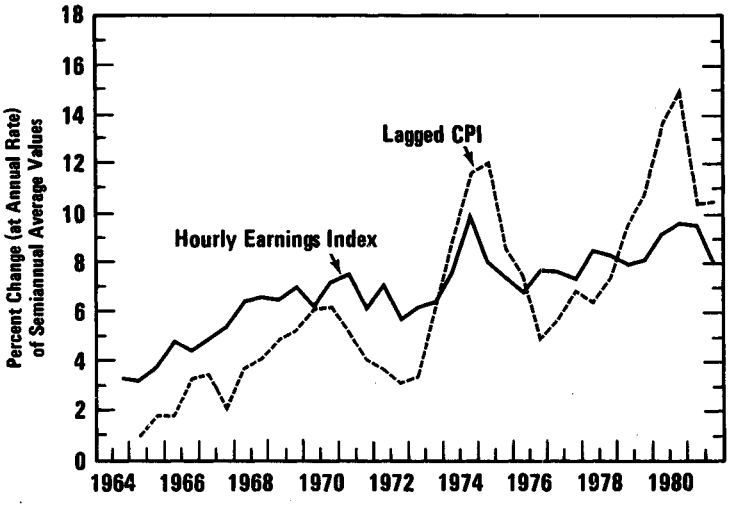
Figure 12.
Consumer Price Index (Lagged One Period) and Hourly Earnings Index



SOURCE:
U.S. Department of Labor, Bureau of Labor Statistics.

in the corporate sector). 2/ The historical behavior of the Consumer Price Index (CPI) and wages, summarized in Figure 12, shows that increases in the CPI have fluctuated considerably more widely than increases in wages. Wages have not fully responded to all the upward shifts in the CPI caused by such factors as the oil price shocks in 1973-1974 and 1979-1980, and the recent surge in mortgage interest rates.

Another reason for inflation momentum is that prices of some categories of products are quite sticky. According to one view, prices in "customer markets" change infrequently because of

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2/ Wages and prices are, of course, part of an interdependent economic system: Wages affect prices, and prices affect wages. In the long run, wages and prices are determined primarily by the interplay between the growth in money aggregates and the determinants of real economic growth, specifically technology, labor, and capital. But in the short run, the momentum of unit labor costs plays an important role in the transition to a lower rate of inflation by influencing the split between real growth and inflation. The key role of labor cost as a source of price inflexibility is illustrated by the fact that the Producer Price Index for finished goods is considerably less volatile than the index for primary goods or for intermediate goods. One reason may be that finished goods prices incorporate a larger proportion of labor cost.

customer relations. If sellers change prices too frequently, regular customers may be encouraged to engage in more searching for lower prices. 3/ Another explanation is that in situations of market concentration--where there are few sellers of a particular product--prices tend to be less flexible either up or down, compared with prices in more competitive markets. 4/

TRENDS IN UNIT LABOR COSTS

Changes in unit labor costs depend on changes in labor compensation per hour and on changes in productivity. The increase in unit labor costs is approximately equal to the increase in the labor compensation rate (labor compensation per hour) less the growth in labor productivity.

Many factors are believed to influence aggregate money wages but analysts have emphasized two in particular: changes in the cost of living, and the amount of slack in labor markets (usually measured by unemployment adjusted for changes in demographic composition). In general, the conclusion has been that labor slack has some modest, gradual effect on wage increases, and that increases in the cost of living tend to be rather fully but gradually reflected in wage increases. 5/ Also, some studies suggest that changes in the amount of slack may be an important determinant of nominal wages. 6/ If so, most of the deceleration in wages may

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3/ Arthur M. Okun, Prices and Quantities: A Macroeconomic Analysis (Brookings, 1981) pp. 138-54.

4/ For a discussion on the effects of market structure on aggregate price movements, see F.M. Scherer, Industrial Market Structure and Economic Performance (Rand McNally, 2nd ed., 1980), pp 349-74.

5/ For a recent survey of the literature on wage determination, see A.M. Santomero and J.J. Seater, "The Inflation-Unemployment Trade-off: A Critique of the Literature," Journal of Economic Literature, vol. XVI, no. 2 (June 1978), pp. 499-544.

6/ For example, see George L. Perry, "Inflation in Theory and Practice," Brookings Papers on Economic Activity, 1 (1980), pp. 207-41; and Robert J. Gordon, Comments (on the paper by Perry, in the same journal), pp. 249-57.

occur during recessions and in the early phases of recovery before unemployment falls sharply. In addition, expectations about future economic conditions, particularly regarding inflation and the strength of demand, are also believed to be important determinants of wage changes. 7/

Wages have shown considerable upward momentum during recessions, particularly during more recent recessions (see Table 16). In fact, wage increases accelerated considerably during the recession of 1973-1975. Special factors played some role in the persistence of wage inflation in 1974-1975--notably the feeding through of food and oil supply shocks and the lifting of wage and price controls. But in general it can be said that wages have become less affected by slack during the post-World War II period. 8/

In general, wages in more concentrated labor markets have been more affected by the persistent increases in the cost of living, and less affected by persistent high unemployment, than wages in more competitive labor markets. Also, wage differentials have widened considerably during the last decade--between union and nonunion workers, between workers in large firms and in smaller firms, and between high-wage industries and low-wage industries (see Table 17 and Figure 13).

The increase in wage dispersion would not necessarily be a cause for concern if it reflected competitive forces that were

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7/ See for example, John B. Taylor, "Aggregate Dynamics and Staggered Contracts," Journal of Political Economy, vol. 88, no. 1 (1980), pp. 1-23; and Robert J. Barro, "Unanticipated Money Growth and Unemployment in the United States," American Economic Review, vol. 67, no. 2 (March 1977), pp. 101-15.

8/ One recent study that examined the cyclical behavior of wages and prices over a considerably longer period of time (since 1890) concluded that wages in particular have shown less downward flexibility in the post-World War II period compared with the prewar period. See Jeffrey Sachs, "The Changing Cyclical Behavior of Wages and Prices: 1890-1976," American Economic Review, vol. 70, no. 1 (March 1980), pp. 78-91. Two explanations were offered for the reduced flexibility of wages in the postwar period: increased use of the three-year wage contract, and more active countercyclical policies that influenced expectations.

TABLE 16. WAGE CHANGES AND THE BUSINESS CYCLE IN THE UNITED STATES, 1948 TO 1981 (Changes at annual rates)

Peak Year and Quarter	Percent Change: 4 Quarters Before Peak (A)	Percent Change: Peak to Trough (B)	Percent Change: 4 Quarters After Trough (C)	Acceleration (Deceleration -): During Recession (B - A)	Acceleration (Deceleration -): During Early Expansion (C - B)	Acceleration (Deceleration -): From Early Expansion to Before Peak (C - A)
			Compensation per Hour Index			
1948:4						
Manufacturing Sector	11.0	1.0	9.3	-10.0	8.3	-1.7
Nonfarm Private Business Sector	7.3	1.0	9.2	-6.3	8.2	1.9
1953:2						
Manufacturing Sector	5.6	4.5	3.3	-1.1	-1.2	-2.3
Nonfarm Private Business Sector	6.0	3.4	3.3	-2.6	-0.1	-2.7
1957:3						
Manufacturing Sector	5.5	4.1	4.2	-1.4	0.1	-1.3
Nonfarm Private Business Sector	5.3	3.8	4.3	-1.5	0.5	-1.0
1960:2						
Manufacturing Sector	4.3	2.9	3.7	-1.4	0.8	-0.6
Nonfarm Private Business Sector	4.4	2.6	4.4	-1.8	1.8	0.0
1969:4						
Manufacturing Sector	7.2	6.5	5.3	-0.7	-1.2	-1.9
Nonfarm Private Business Sector	6.5	7.0	5.7	0.5	-1.3	-0.8
1973:4						
Manufacturing Sector	8.1	13.4	7.7	5.3	-5.7	-0.4
Nonfarm Private Business Sector	8.1	10.8	7.4	2.7	-3.4	-0.7
1980:1						
Manufacturing Sector	9.5	14.0	10.3	4.5	-3.7	0.8
Nonfarm Private Business Sector	9.7	10.2	10.1	0.5	-0.1	0.4

(Continued)

TABLE 16. (Continued)

Peak Year and Quarter	Percent Change: 4 Quarters Before Peak (A)	Percent Change: Peak to Trough (B)	Percent Change: 4 Quarters After Trough (C)	Acceleration (Deceleration -): During Recession (B - A)	Acceleration (Deceleration -): During Early Expansion (C - B)	Acceleration (Deceleration -): From Early Expansion to Before Peak (C - A)
Average Hourly Earnings Index						
1948:4						
Manufacturing Sector	9.2	1.4	6.2	-7.8	4.8	-3.0
Nonfarm Private Business Sector	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1953:2						
Manufacturing Sector	5.4	3.8	2.4	-1.6	-1.4	-3.0
Nonfarm Private Business Sector	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1957:3						
Manufacturing Sector	5.0	4.2	3.3	-0.8	-0.9	-1.7
Nonfarm Private Business Sector	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1960:2						
Manufacturing Sector	3.1	3.0	2.7	-0.1	-0.3	-0.4
Nonfarm Private Business Sector	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1969:4						
Manufacturing Sector	6.1	6.1	6.2	0.0	0.1	0.1
Nonfarm Private Business Sector	6.9	6.6	6.5	-0.3	-0.1	-0.4
1973:4						
Manufacturing Sector	6.5	10.3	8.2	3.8	-2.1	1.7
Nonfarm Private Business Sector	6.3	8.9	7.1	2.6	-1.8	0.8
1980:1						
Manufacturing Sector	8.9	11.8	9.4	2.9	-2.4	0.5
Nonfarm Private Business Sector	8.3	9.5	9.2	1.2	-0.3	0.9

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

TABLE 17. AVERAGE ANNUAL WAGE RATE INCREASES FOR PRODUCTION WORKERS IN MANUFACTURING BY UNION AND NONUNION ESTABLISHMENTS, 1970 TO 1978 (Percent change)

Year	Union Establishments (A)	Nonunion Establishments (B)	Difference (A - B)
1970	6.8	6.1	0.7
1971	7.7	5.7	2.0
1972	5.8	5.3	0.5
1973	6.7	6.7	--
1974	8.9	8.6	0.3
1975	8.9	6.9	2.0
1976	8.5	6.9	1.6
1977	8.1	7.0	1.1
1978	7.8	6.3	1.5
Average, 1970-78:			
Nominal	7.7	6.6	1.1
Real a/	1.7	0.6	1.1

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

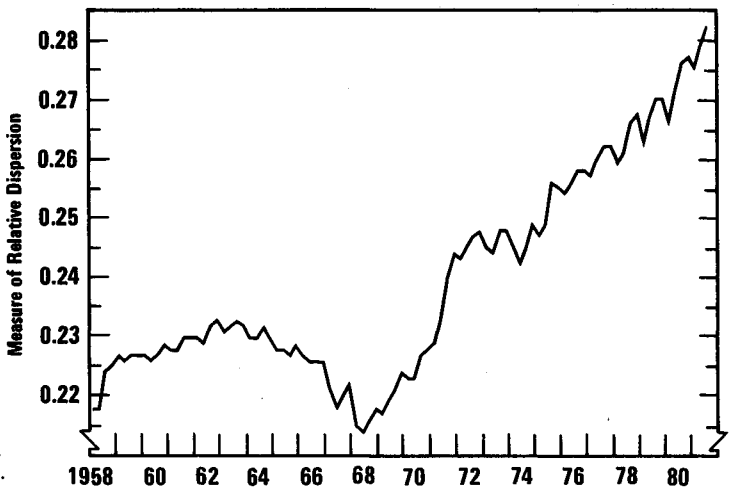
a/ Using the personal consumption expenditures deflator.

Figure 13.

Interindustry Relative Dispersion of Wages

NOTE:
Measure of relative dispersion is the ratio of the standard deviation to the mean for wages in 116 industries.

SOURCE: U.S.Department of Labor, Bureau of Labor Statistics.



leading to a more efficient allocation of resources. That may not be the case, however. Noncompetitive forces seem to have distorted the wage structure to some extent. This in turn may have exacerbated the loss of high-productivity jobs in some industries. 9/ The relatively strong momentum of wage increases in some labor markets has complicated the policy task of stabilizing the economy. Not only have large wage increases persisted in the face of considerable unemployment in those labor markets, but they may induce workers in other sectors to try to catch up--thus making the battle against inflation more difficult still. Policymakers have been faced with the choice of fighting high inflation or high unemployment. Both, of course, have been inimical to long-run growth.

Causes of Wage Momentum

The precise cause of the momentum in wages and prices and the interpretation of the momentum is the subject of intense current debate among economists. Among the factors believed to have contributed to wage momentum in the United States are:

- o Wage contracts--including longer-term, three-year contracts and cost-of-living indexing;
- o Wage norms or customary real increases in compensation, together with traditional wage relationships among different groups of workers;
- o Market power of large firms and large unions;
- o Changes in the significance of unemployment;

9/ For example, wage rates in steel and in autos rose substantially more rapidly than wages in all manufacturing during the last two decades; and, although there were other factors involved too, wage escalation played some role in the loss of high productivity jobs in these industries. See U.S. Industrial Competitiveness: A Comparison of Steel, Electronics and Automobiles, Office of Science and Technology, U.S. Congress (1981), pp. 58-60. Another recent study found that U.S. capital-intensive, low-skill industries have lost some of their competitiveness. See Assessing the Changing Structure of World Trade, U.S. Bureau of International Labor Affairs, Economic Discussion Paper 11 (July 1980), p.28.

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- Government policies, particularly countercyclical monetary and fiscal policies.

Wage Contracts and Cost-of-Living Escalators

Wage Contracts. Most employment in the modern U.S. economy involves a continuous relationship between the employee and the employer, with the conditions of employment mutually understood. In unionized plants and in the structured "career" labor market that typifies most large employers (whether unionized or not) both employee and employer expect their relationship to continue over a number of years. 10/ In such situations, the wage contract--whether formal or implicit--imparts an inertia to wages. It takes time for the parties of the agreement to adjust to changes in the economic environment; when they do so, considerations of what is fair or normal play an important role.

In the unionized sector, contracts tend to be formal and in many cases long-term--typically three years. 11/ Although union workers represent only about 30 percent of private nonfarm employment, the union sector has a disproportionate effect on overall wage changes. Some nonunion wages are strongly influenced by union wages, although wage contracts may be implicit rather than formal.

One reason that wages may have more momentum today is that collective bargaining contracts now tend to cover a longer time span. In 1956, only 22 percent of major collective bargaining contracts were for three years or longer, but in 1980 approximately

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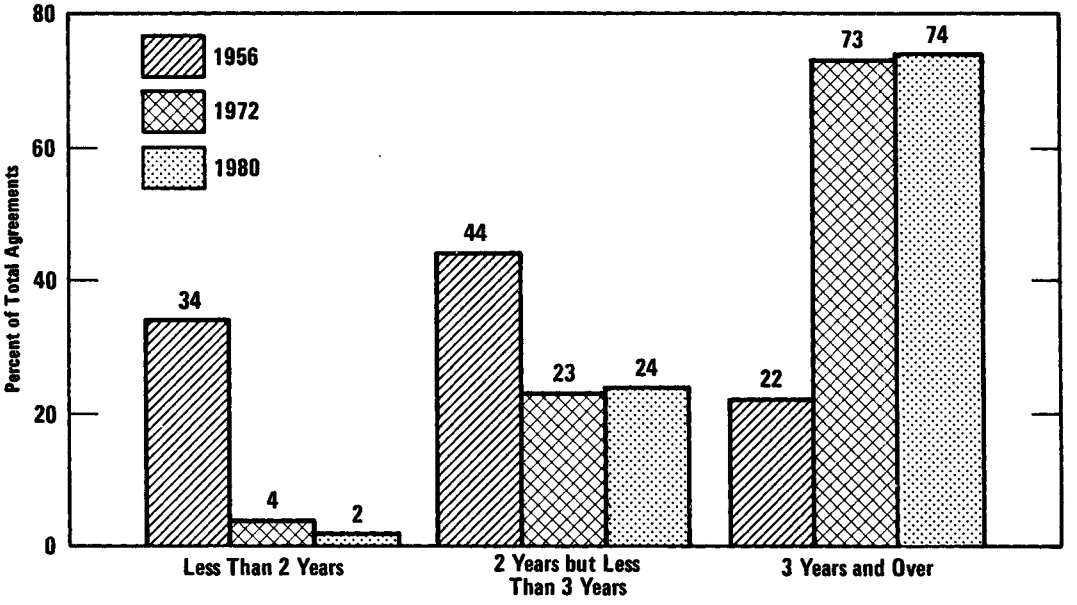
10/ Economists sometimes refer to the structured labor market inside the firm as a "career labor market" or "internal labor market." Essential features of such jobs are that they offer stability, opportunities for promotion, and fringe benefits. See Arthur M. Okun, "Inflation: Its Mechanics and Welfare Costs," Brookings Papers on Economic Activity, 2 (1975), pp. 366-67; and Peter B. Doeringer and Michael J. Piore, Internal Labor Markets and Manpower Analysis (Heath, 1971), pp. 13-90.

11/ The significance of wage contracts for inflation momentum has been emphasized by several economists, including John B. Taylor, "Aggregate Dynamics and Staggered Contracts," op. cit.; and Martin Neil Baily, "Contract Theory and the Moderation of Inflation by Recession and Controls," Brookings Papers on Economic Activity, 3 (1976), pp. 585-622.

Figure 14.

Duration of Major Collective Bargaining Agreements in 1956, 1972, and 1980



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

three-quarters were for at least three years (see Figure 14 and Table 18). 12/ Of course, if economic conditions change, the parties to a collective bargaining agreement can reopen the contract and negotiate lower wage increases, but that has seldom occurred except in dire and unusual circumstances. As discussed in Chapter I, some unions have recently given up wage gains or appear willing to consider giving up wage gains, on an unprecedented scale. The Bureau of Labor Statistics reports that, for the first time, contract reopenings had a significant impact on wage gains under major collective bargaining agreements in 1981.

12/ Even if the increase in contract length has reduced the flexibility of wages, it may have had other advantages such as less frequent and less costly strikes. A principal reason for the increased popularity of the three-year contract may be that it reduces costs of negotiation and helps the employer to anticipate labor costs. Some economists speculate that wage contracts may exist because workers are more risk averse than management. See for example, Baily, "Contract Theory."

Wages in the unionized sector are considerably less sensitive to unemployment than wages in the nonunion sector, and that is particularly true for wages established in long-term contracts. A recent study of the manufacturing sector found that wages are not very sensitive to unemployment over the life of longer-term contracts. First-year wage increases, however, which included

TABLE 18. DURATION OF CONTRACTS FOR MAJOR COLLECTIVE BARGAINING AGREEMENTS IN SELECTED INDUSTRIES, JANUARY 1980

	Less Than 24 Months	24 to 35 Months	36 Months or Longer
	Percent of Total Agreements		
All Industries	2.2	23.6	74.2
Manufacturing	1.6	21.1	77.3
Nonmanufacturing	2.8	26.0	71.2
Construction	3.4	33.0	63.6
	Percent of Total Workers		
All Industries	1.4	19.2	79.4
Manufacturing	1.1	21.2	77.6
Nonmanufacturing	1.6	17.6	80.9
Construction	2.4	23.6	74.0

NOTE: Major agreements involve at least 1,000 workers.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Characteristics of Major Collective Bargaining Agreements (May 1981), p. 14.

one-year contracts, were affected by unemployment about as much as wages in the nonunionized sector. 13/

A further reason why wage contracts in this country contribute to inflation momentum is that their expiration dates are staggered. Negotiations are thus influenced not only by expectations about the future but by other wage contracts already concluded. This may not hold for some countries, notably Japan and Germany, where the structure of collective bargaining institutions may facilitate adjustment to changing conditions. Collective bargaining contracts in those countries are generally limited to one year, and the expiration dates tend to be synchronized. Bargaining is also much more centralized, which may make it easier to coordinate a slowing of the price-wage spiral. 14/

Cost-of-Living Escalators. Indexing wages for changes in the cost of living, a predominant feature of multiyear collective bargaining agreements, has mixed implications for wage momentum. 15/ On the one hand, when a major price increase first

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13/ Daniel J.B. Mitchell, "Union Wage Determination: Policy Implications and Outlook," Brookings Papers on Economic Activity, 3 (1978), pp. 537-82.

14/ Other institutional factors may be critical in explaining greater wage flexibility in Japan and Germany. In Japan for instance, many workers are paid substantial but varying bonuses at year-end. In Germany, the central bank has followed the practice of announcing macroeconomic targets before labor and management conclude their wage agreements.

15/ During periods of inflation, the use of such cost-of-living agreements (COLAs) becomes more widespread. Specifically, 23 percent of all workers under major contracts involving at least 1,000 workers were covered by escalators in 1955; 50 percent were covered in 1958 after inflation had flared up. The percentage covered fell to 20 percent in 1966 and then rose to 50 percent by 1975. Most COLAs provide for less than full passthrough of increases in the CPI--on average, only about one-half to two-thirds of an increase. See Council on Wage and Price Stability, Cost of Living Escalator Clauses and Inflation, Staff Report (August 1975), pp 11-32. In recent years, the CPI has considerably overstated increases in the cost of living because of the treatment of housing and mortgage interest in computing the index.

occurs, the cost-of-living agreements (COLAs) cause this initial price impulse to spread rather quickly to other wages and prices. In addition, if the price increase implies that real incomes must fall (for example, because the cost of imported oil has increased), COLAs may tend to isolate some workers from the effect: to the extent that others attempt to catch up with them, the inflationary impact is magnified. On the other hand, when the impetus to inflation from that source begins to fade, COLAs partially transmit the slowing of price increases into wages, but typically much less than in proportion. Thus, wages covered by three-year contracts with COLAs will decelerate more rapidly at the end of an inflation than wages covered by contracts of similar length without COLAs. But either of these arrangements may contribute to more wage momentum than shorter or less formal contracts.

Wage Norms and Interdependencies

The customary real wage gains (wage norms) observed in some industries have exacerbated wage momentum. Over the years, many workers came to expect a "catch up" for unexpected increases in the cost of living, plus a 2 to 3 percent real increase each year. Absent compelling reasons to the contrary, both employers and employees came to regard such wage agreements as normal and expected. Moreover, when one group got a large wage increase, other groups who compare their wages with those in that group attempted to catch up. 16/ Since workers, on average, cannot achieve real wage gains in excess of productivity growth, attempts by groups to maintain such norms or to catch up when productivity growth has slowed lead to inflationary increases in labor costs. This has been the experience of recent years.

16/ The precise importance and characteristics of wage interdependencies are still being debated by economists and the issue has not been settled. Some researchers have stressed a limited role for wage contagion. For example, one concludes, "Union wage gains do not appear to leak out into the nonunion sector where wages are lower and more flexible." See Robert J. Flanagan, "Wage Interdependence in Unionized Labor Markets," Brookings Papers on Economic Activity, 3 (1976), p. 673. For a contrary view about the effect of union wages on nonunion wages, see Council on Wage and Price Stability, A Quarterly Report of the Council on Wage and Price Stability with a Special Report on Inflation (April 1978), pp. 45-46.

Market Power

Large firms and large unions (as well as some groups of skilled workers and professionals) are sometimes able to obtain larger wage increases because of their market power. This does not mean that they are immune to market forces, but only that they have more discretion in wage and price decisionmaking.

It is debatable whether market concentration (in either labor or product markets) has increased during the postwar period. The critical factor is that the economic environment changed after 1973. In the context of high inflation and high unemployment, economic power has permitted increases in the cost of living to be shifted into higher wages, contributing to the momentum of inflation.

Changes in the Significance of Unemployment

As a measure of labor market slack, or pressure restraining wage increases, a particular level of unemployment in recent years means something quite different than it did 20 or 25 years ago. An unemployed worker is now more likely to be a member of a family with at least one employed worker. 17/ In addition, coverage under the unemployment insurance program has become more complete so that a substantial proportion of unemployed workers can wait longer in hope of getting better-paying jobs. 18/ The downward pressure on wages has been correspondingly reduced.

Another reason that unemployment may have relatively little effect in restraining wage increases is that a significant proportion of unemployed workers are on recall. They expect to be called back to their old jobs when recovery begins. If such workers are not actively searching for other jobs, their unemployment may cause relatively little pressure on wages--particularly in the beginning.

17/ In 1980, about 70 percent of unemployed workers (in families) were in families with at least one employed member. The increasing labor force participation of women and youth during the last two decades implies a correspondingly larger percentage than in the past.

18/ Approximately 97 percent of wage and salary employment is now covered by unemployment insurance programs compared to 77 percent in 1970.

Government Policies

Some economists believe that countercyclical monetary and fiscal policies have contributed to the upward momentum of wages and prices in that they have led people to expect brief recessions and relatively strong recoveries. The long inflationary trend that began after the mid-1960s, together with the increased use of longer-term wage contracts, may have affected expectations about wages and prices in the future and lessened the impact of economic slack on wage and price decisions.

Economists differ as to whether government monetary and fiscal policies are capable of slowing inflation without damping down the economy. Some believe that inflation persists in the face of economic slack because government policies have become more inflationary. Some also believe that the primary factor determining nominal wages and prices (even in the short run) is people's expectations about the future course of prices and that these expectations are mainly determined by what they percei e to e the direction of monetary policy. If so, the government might slow inflation quickly if it could convince people that its policies had become less accommodative of inflation and less responsive to cyclical changes in unemployment. 19/

To other economists, however, the historical record suggests that overcoming inflation may be very costly in the absence of some profound change such as the end of a major war or the end of great political turmoil. 20/ According to this view, expectations about prices are strongly influenced by past events such as changes that

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19/ See for example, Thomas J. Sargent, "The Ends of Four Big Inflations," paper presented at the National Bureau of Economic Research Conference on Inflation, October 10, 1980. For a discussion of the key role of the credibility of macroeconomic policies, see William Fellner, "The Core of the Controversy about Reducing Inflation: An Introductory Analysis," in Fellner, ed., Contemporary Economic Problems 1978 (American Enterprise Institute, 1978), pp. 1-12.

20/ See for example, Robert J. Gordon, "Why Stopping Inflation May Be Costly: Evidence From Fourteen Historical Episodes," NBER Conference on Inflation, February 27, 1981; and Charles L. Schultze, "Some Macro Foundations for Micro Theory," prepared for the Brookings Panel on Economic Activity, September 17-18, 1981.

have already occurred in the cost of living. Thus, the question of what determines price expectations has not been resolved. 21/

Not only monetary and fiscal policies have contributed to wage momentum but other government policies as well, including tax policies, minimum wage policies, Davis-Bacon procedures for setting wages on federal contracts, and restrictions on international trade. The frequent increases in payroll taxes during the last 20 years have added significantly to employers' costs. 22/

The Outlook For Wages

Past experience suggests that wage increases in the next few years will retain their strong momentum. It may be moderated, however, by several special factors: First, increases in the cost of living have slowed, primarily from more stable energy and food prices, and there is less wage catch-up in store than during the latter half of the 1970s. Second, the unemployment rate has been relatively high for an extended period and may increase further in the first half of 1982. Third, lower wage settlements may be reached in certain major collective bargaining settlements in 1982. The automobile sector has been in a severe slump for some time, as a result of a confluence of problems including the recession, high interest rates, the need to redesign product lines, and heavy foreign competition. Similarly, the trucking industry has been adversely affected by slow economic growth, the recession, energy-related problems, and competitive pressure from deregulation of transportation. (It is uncertain, however, to what extent agreements reached in these special situations may affect other wage bargains.) Fourth, in the area of government policies, no

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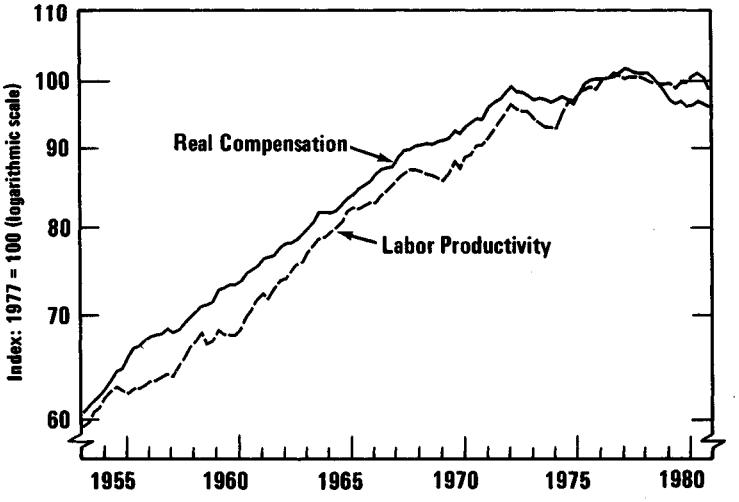
21/ For a recent discussion of alternative views about the costs of stopping inflation, see James Barth, "The Costs of Slowing Inflation: Four Views," Economic Review (Federal Reserve Bank of Atlanta, January 1982), pp. 39-49.

22/ There is also some evidence that increases in personal income taxes may add to upward momentum in nominal wages in some circumstances, particularly in several countries of Western Europe. See for example, Vito Tanzi, Inflation and the Personal Income Tax: An International Perspective (Cambridge University Press, 1980) Chapter 12, pp. 131-42.

increase in the minimum wage is scheduled for 1982, and the Social Security tax increase is less in 1982 than in 1980 or 1981. Finally, inflationary expectations may have moderated as people sense a shift toward less inflationary monetary and fiscal policies.

Figure 15.

Real Hourly Compensation and Output per Hour (Labor Productivity)



SOURCE:
U.S. Department of Labor,
Bureau of Labor Statistics.

Productivity Trends

No turnaround is yet evident in the productivity slowdown that began in the 1960s and worsened considerably during the 1970s. Slower productivity growth has retarded growth in real compensation and exacerbated inflation (Table 19 and Figure 15).

The slowdown in productivity growth seems to have been due to several fundamental causes, rather than to any single or dominant cause that could be reversed easily with a change of policy. Markedly slower growth in the amount of capital per worker after about 1973 was a factor in the productivity slowdown. Public policies accounted for some of the slowdown, particularly increased regulation and a tax system that worked in combination with inflation to discourage productive saving and investment. Other important factors included the leap in energy costs, rapid growth in the labor force, particularly the influx of large numbers of inexperienced workers into the labor market, and the virtual completion of the shift of labor from low-productivity employment in farming to higher-productivity employment elsewhere. 23/

23/ For a detailed study, see Congressional Budget Office, The Productivity Problem: Alternatives for Action (January 1981).

TABLE 19. GROWTH IN OUTPUT PER HOUR OF LABOR IN THE UNITED STATES, SELECTED PERIODS, 1947 TO 1981 (Average annual percent changes)

	Private Business Sector	Nonfarm Private Business Sector	Manufacturing Sector
1947-1965	3.3	2.7	3.2
1965-1973	2.4	2.1	2.8
1973-1978	1.1	0.9	1.6
1978-1979	-0.4	-0.7	1.1
1979-1980	-0.2	-0.3	-0.4
1980-1981	1.1 a/	0.8 a/	2.7 a/

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

a/ Data for 1981 are preliminary.

The fact that the productivity slowdown has been a worldwide phenomenon also attests to the fundamental nature of its causes. The data in Table 20 confirm that almost all industrial countries have experienced a significant slowdown in productivity growth; in some cases, the slowdown has been considerably more pronounced than in the United States.

It may be very difficult to reverse or offset the factors that caused the productivity slowdown. Businesses are hesitant to invest when they have considerable unused capacity and when the costs of financing are so high. Moreover, while energy costs appear to have stabilized (at least for the time being), some economists believe that the negative impacts of earlier increases operate with substantial lags. 24/ Some easing of government

24/ See for example, William D. Nordhaus, "Oil and Economic Performance in Industrial Countries," Brookings Papers on Economic Activity, 2 (1980), pp. 341-88.

TABLE 20. AVERAGE ANNUAL GROWTH IN LABOR PRODUCTIVITY IN MAJOR INDUSTRIAL COUNTRIES, 1960 TO 1973 AND 1973 TO 1979 (Percent changes)

Country	1960-1973 (A)	1973-1979 (B)	Slowdown (A - B)
United States	3.1	1.1	2.0
Canada	4.2	1.0	3.2
Italy	7.8	1.6	6.2
United Kingdom	3.8	1.9	1.9
Sweden	5.8	2.5	3.3
Japan	9.9	3.8	6.1
France	5.9	4.2	1.7
West Germany	5.8	4.3	1.5
Belgium	6.1	4.4	1.7

SOURCE: John W. Kendrick, "International Comparisons of Recent Productivity Trends," in William Fellner, ed., Essays in Contemporary Economic Problems: Demand, Productivity and Population (American Enterprise Institute, 1981), p. 128.

regulation is possible, although the objectives that the regulations are designed to achieve--such as environmental quality and occupational safety--continue to be important goals, constraining this approach to productivity growth.

Nevertheless, there are reasons to expect some modest and gradual improvement in U.S. productivity growth in the 1980s. First, recovery from the current recession should bring with it a cyclical upswing in productivity--as overhead labor is spread over a larger volume of output. Second, the recently enacted tax measures should eventually spur capital formation and innovation. (As indicated in the next section, however, high interest rates could offset much of the positive effect of these tax increases.) Third, the labor force is likely to grow more slowly during the 1980s contributing to faster growth in the capital-to-labor ratio, and the influx of inexperienced youths into the labor force will slow as the baby boom generation grows older. However, most analysts expect a rapid impact only from the first factor.